

GP-302955

COMBUSTION-ASSISTED ENGINE START/STOP  
OPERATION WITH CYLINDER/VALVE DEACTIVATION

## ABSTRACT OF THE DISCLOSURE

A method for enabling combustion-assisted engine starting includes adjusting a throttle valve to provide an air flow rate to an engine of a vehicle that is sufficient to create starting torque. Fuel that  
5 is sufficient to create starting torque is injected into a cylinder of the engine during an intake stroke of the cylinder. A spark plug of the cylinder is disabled. An intake and exhaust valve of the cylinder are disabled. The engine is deactivated. A method for activating the engine includes enabling the spark plug. A piston of the cylinder is  
10 positioned between a TDC position of a compression stroke and a BDC position of an expansion stroke or between a TDC position of an exhaust stroke and a BDC position of an intake stroke. A fuel/air charge that is sufficient to create starting torque is ignited in the cylinder. The intake and exhaust valve are activated.